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Men Against Fire in Vietnam

by

Major Russell W. Glenn
Corps of Engineers

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School of Advanced Military Studies
U. S. Army Command and General Staff College
Fort Leavenworth, Kansas

8 November 1987

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88-2141

88 3 31 069

UNCLASSIFIED

A191403

SECURITY CLASSIFICATION OF THIS PAGE

Form Approved
OMB No. 0704-0188

REPORT DOCUMENTATION PAGE

1a. REPORT SECURITY CLASSIFICATION Unclassified		1b. RESTRICTIVE MARKINGS None	
2a. SECURITY CLASSIFICATION AUTHORITY		3. DISTRIBUTION/AVAILABILITY OF REPORT Approved for public release; distribution is unlimited	
2b. DECLASSIFICATION/DOWNGRADING SCHEDULE			
4. PERFORMING ORGANIZATION REPORT NUMBER(S)		5. MONITORING ORGANIZATION REPORT NUMBER(S)	
6a. NAME OF PERFORMING ORGANIZATION School of Advanced Military Studies, USACGSC	6b. OFFICE SYMBOL (if applicable) ATZL-SWV	7a. NAME OF MONITORING ORGANIZATION	
6c. ADDRESS (City, State, and ZIP Code) Fort Leavenworth, KS 66027-6900	7b. ADDRESS (City, State, and ZIP Code)		
8a. NAME OF FUNDING/SPONSORING ORGANIZATION	8b. OFFICE SYMBOL (if applicable)	9. PROCUREMENT INSTRUMENT IDENTIFICATION NUMBER	
8c. ADDRESS (City, State, and ZIP Code)	10. SOURCE OF FUNDING NUMBERS		
	PROGRAM ELEMENT NO.	PROJECT NO.	TASK NO.
	WORK UNIT ACCESSION NO.		
11. TITLE (Include Security Classification) Men Against Fire in Vietnam (U)			
12. PERSONAL AUTHOR(S) Major Russell W. Glenn, USA			
13a. TYPE OF REPORT Monograph	13b. TIME COVERED FROM _____ TO _____	14. DATE OF REPORT (Year, Month, Day) 07/11/0	15. PAGE COUNT 95
16. SUPPLEMENTARY NOTATION			
17. COSATI CODES		18. SUBJECT TERMS (Continue on reverse if necessary and identify by block number)	
FIELD	GROUP	SUB-GROUP	Vietnam Combat Performance
			Combat behavior Ratio of Fire
			Weapons Training Combat Effectiveness
19. ABSTRACT (Continue on reverse if necessary and identify by block number) S.L.A. Marshall stated that no more than 25% of American fighting men engaged the enemy during the course of a World War II battle. His research during the Korean War showed this value had increased to 50%. If the 50% figure remains valid, then the effective strength of the 6 man dismounted Bradley squad is equivalent to only three men. The strength of a light infantry squad is at best 5 men. Did American soldiers in Vietnam put out an effective volume of small arms fire? This question and its applicability to current training and future combat are addressed in this monograph. The basis for analysis is two surveys, one of 500 Vietnam veteran members of the 1st Cavalry Division Association and a second of 63 officers who served as platoon leaders or company commanders in Vietnam. Respondents were questioned regarding personal engagement of the enemy, engagement by other unit members, causes for failing to fire, and training advice for			
20. DISTRIBUTION/AVAILABILITY OF ABSTRACT <input checked="" type="checkbox"/> UNCLASSIFIED/UNLIMITED <input type="checkbox"/> SAME AS RPT. <input type="checkbox"/> DTIC USERS		21. ABSTRACT SECURITY CLASSIFICATION UNCLASSIFIED	
22a. NAME OF RESPONSIBLE INDIVIDUAL Major Russell W. Glenn		22b. TELEPHONE (Include Area Code) (913) 684-3437	22c. OFFICE SYMBOL ATZL-SWV

Block 18 (continued)

S.L.A. Marshall

Small arms fire

Combat degredation

Block 19 (cont)

contemporary soldiers.

The results bode well for an American army that may fight in other Vietnam-type wars or have to fight outnumbered and win. Over 83% of the soldiers equipped with individual weapons and over 86% of those manning crew-served systems engaged the enemy in Vietnam.

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School of Advanced Military Studies
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Fort Leavenworth, Kansas

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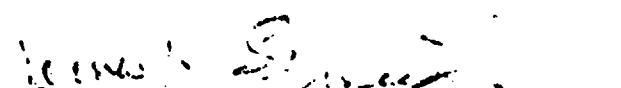
88-2141

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School of Advanced Military Studies
Monograph Approval

Name of Student: Major Russell W. Glenn
Title of Monograph: Men Against Fire in Vietnam

Approved by:



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Advanced Military Studies



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Programs

Accepted this 14th day of December 1988.

ABSTRACT

MEN AGAINST FIRE IN VIETNAM by Major Russell W. Glenn, USA

S.L.A. Marshall stated that no more than 25% of American fighting men engaged the enemy during the course of a World War II battle. His research during the Korean War showed this value had increased to 50%. If the 50% figure remains valid, then the effective strength of the 6 man dismounted Bradley squad is equivalent to only three men. The strength of a light infantry squad is at best 5 men.

Did American soldiers in Vietnam put out an effective volume of small arms fire? This question and its applicability to current training and future combat are addressed in this monograph. The basis for analysis is two surveys, one of 500 Vietnam veteran members of the 1st Cavalry Division Association and a second of 63 officers who served as platoon leaders or company commanders in Vietnam. The surveys questioned respondents regarding personal engagement of the enemy, engagement by other unit members, causes for failing to fire, and training advice for contemporary soldiers.

The results bode well for an American army that may fight in other Vietnam-type wars or have to fight outnumbered and win. Over 83% of the soldiers equipped with individual weapons and over 86% of those manning crew-served systems engaged the enemy in Vietnam. ~~uses~~

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I. Introduction

Tactics depend mainly on the powers of the weapons.¹

JFC Fuller
The Generalship of Ulysses S. Grant

A similar tale can also be told of the American mainforce war in Vietnam...The traditional role of the infantryman, despite everything, remained paramount.²

Paddy Griffith
Forward into Battle

Infantry remains the base element in contemporary armies. Twenty-one of the United States' 28 divisions are infantry units; 157 of the Soviet Union's 211 divisions are motorized rifle (motorized or mechanized infantry) or airborne divisions.³ Even in the recent armor and air intensive Arab-Israeli wars, the infantryman remained key. After the 1973 war, Israeli armored division commander General Avraham Adan stated that "despite the infantry's high vulnerability to a whole host of weapons, there still exist many battlefield situations in which there is absolutely no substitute for infantry troops."⁴

The need for potent infantry forces remains. They must be able to engage the enemy with effective direct fire in both offensive and defensive situations. Yet S.L.A. Marshall, in his classic Men against Fire: The Problem of Battle Command in Future War, concluded that at most 25%

of American World War II fighting men in any unit engaged the enemy with direct fire or close combat weapons.⁵ His subsequent study conducted in the Korean War found this value had increased to over 50%.⁶ In the contemporary M2 Bradley Fighting Vehicle infantry squad, the dismount strength of the unit is 6 personnel. The full strength light infantry squad consists of nine men. Using the more recent of Marshall's values (50%), the firepower of Bradley squads depends on 3 men who fire their weapons. The equivalent measure for a light infantry squad is at most 5 men. An infantry squad operating at half of its effectiveness does not bode well for operations in any army. The danger increases when the army is one which may find its next conflict similar to Vietnam wherein the operations are squad or platoon intensive.

The use of chemical weapons further degrades a unit's combat power. Recent U.S. Army tests in a simulated chemical environment reflected a decrease in firing rates of 20% in the defense and 40% in the offense.⁷ Continuing the above inspection of squad firepower, the Bradley leader's unit effective strength in a chemical environment defense could be as low as 2-3 men. In the offense the value is an equally combat ineffective 1-2 men. The values for the light infantry squad are similarly unacceptably low.

There are additional reasons for concern. Given the individual weapons character of such key anti-tank systems as the Dragon and LAW, the viability of NATO's ability to halt Warsaw Pact tank and motorized rifle attacks is questionable should infantry soldiers fail to engage with these critical weapons.

This study's objective is the determination of whether American soldiers put out an effective volume of small arms direct fire in Vietnam combat. The bases for the evaluation are two surveys. The first survey questioned American veterans who served in Vietnam. The second group surveyed was officers assigned as platoon leaders and company commanders in that war. The results of these surveys fix the foundations for analysis of whether the American fighting man engaged the enemy with effective small arms fire in combat and how his present and future counterparts can be better prepared to do so. Regardless of whether Marshall's values were correct, the issue is vital to an army faced with a future of intensely infantry-oriented wars or war in which it must fight outnumbered and win.

II. Background : Historical studies

...on an average not more than 15 per cent of the men had actually fired at the enemy...the figure did not rise above 20 to 25 per cent of the total for any action. The best showing that could be made by the most spirited and aggressive companies was that one man in four had made at least some use of his fire power.*

S.L.A. Marshall
Men Against Fire

Your co.[company] depended on your firepower, you had to fire.*

Veteran Survey #95

Marshall's writings on the "ratio of fire" brought widespread attention to the problem of failure to engage. When S.L.A. Marshall stated that not more than 25% of the men in World War II fired their weapons at the enemy, he also said that most of the actions took place in situations where 80% of the men could have fired.* He further stated "Terrain, the tactical situation, and even the nature of the enemy and the accuracy of his fire appeared to have almost no bearing on the ratio of active firers to non-firers." The 25% value was not uniformly applicable, however. Heavy weapons personnel were more likely to engage the enemy. The obvious implication is that those men armed with lighter weapons fired at under the 25% value.* Marshall also analyzed the causes for engagement failure and the means to enhance the ratio of fire:

The failure of the average soldier to fire is not in the main due to conscious recognition of the fact that the act of firing may entail increased exposure. It is a result of a paralysis which comes of varying fears.¹² The fear of aggression has been expressed to him so strongly and absorbed by him so deeply and pervasively...that it is part of the normal man's emotional make-up. Medical Corps psychiatrists...found that fear of killing, rather than fear of being killed, was the most common cause of battle failure in the individual, and that fear of failure ran a strong second.¹³

Simplistically stated, Marshall's solution to this problem was leader attention. If the leader could cause recalcitrants to engage the enemy with any weapon, their future reliability was greatly enhanced. Marshall believed the soldier need only clear that original hurdle to be effective thenceforth.¹⁴

Marshall's second study was conducted in Korea under the auspices of the Operations Research Office (ORO) in the period November 1, 1950 to March 1, 1951. He attributed the higher 50% ratio of fire value for the Korean War to an increased consciousness of problems regarding non-firers. Small unit leadership concentrated on those soldiers who failed to fire and unit members were more vociferous in verbal support of each other during battle.¹⁵

Marshall's are the best known modern studies of soldier failures to fire, but they are not unique. World War II reports of problems with small arms volume of fire existed as early as the Tunisian campaign. Such reports increased

in frequency as the fighting moved to Sicily, Italy, and into France. Only in the latter part of the war did the percentage of men firing increase.¹⁴ Commanders recognized the problem. General George Patton instructed a newly arrived unit:

The casualties in a unit are in direct proportion to the intensity of the fire received and the length of time under that fire. When under fire, keep advancing and keep shooting. Use marching fire.¹⁷

Post-World War II analytical studies confirmed the existence of American soldiers failing to fire and lent credence to Marshall's writings. Another ORO study of combat veterans in 1953 noted "Bugged out in fire fight" as the most commonly cited "ineffective combat behavior."¹⁸ A 1986 study by the British Defense Operational Analysis Establishment's Field Studies Division openly supported Marshall's findings. Using historical studies of over 100 19th and 20th century battles and test trials using pulsed laser weapons, the analysis attempted to measure the performance of men firing without the danger of receiving live fire in return. Tests were conducted which measured performance in both the offense and defense. Laser trial casualty rates inflicted by defenders were higher than values from studies of actual battles. The researchers concluded that "Marshall's interview data does appear to point to unwillingness to take part as the main factor"

which kept actual battle statistics below test (laser trial) levels.¹⁹

Similar analytical examinations of soldier effectiveness in engaging the enemy during the Vietnam War are lacking, but there are observations regarding the subject. When asked if the percentage of men firing in Vietnam was the same or better than in World War II, General DePuy (commander of the 1st Infantry Division in Vietnam) commented:

It was better but I don't know the percentages...my guess is that 50 percent would be very, very good. I'd say that 50 percent would be high. I hope they got up to that."²⁰

Few question the existence of a problem in getting soldiers to fire in combat. Marshall's conclusions remain and have been internalized. His findings are frequently cited, unchallenged, by such respected historians as Russell F. Weigley (in Eisenhower's Lieutenants) and analysts as John A. English (in On Infantry).²¹ So too remains the concern for how effective a volume of small arms fire the American soldier will put out against the enemy.

III. Method

...experience is long and life is short. The experiences of each cannot therefore be completed except by those of others.²²

Ardant Du Picq
Battle Studies

The average soldier will tell the absolute truth when asked if he has used his weapon.²³

S.L.A. Marshall
Men Against Fire

Did the American fighting man put out an effective volume of small arms fire in Vietnam? To determine the answer to this question, the author prepared two questionnaires and surveyed veterans of the Vietnam War (copies of the questionnaires are in Annexes A and B). The first sample was a group of 500 members of the 1st Cavalry Division Association. Survey questions addressed the Vietnam combat performance of both the respondent and his fellow unit members. The second sample consisted of 63 active duty officers who had held platoon or company leadership positions in the war. These officers were asked about the performance of their men in combat.

Surveying soldiers with the objective of obtaining battle-related information is not an original concept. Lieutenant William Siborne used a letter which asked surviving Battle of Waterloo officers to recount their personal role and recollection of the battle in an attempt

to reconstruct the events of that episode.²⁴ Ardant Du Picq likewise solicited 19th century general officers to answer questions pertaining to soldier and unit actions in combat in an attempt to better prepare the French army for war.²⁵ American soldiers in World War II and Korea were the subjects of several studies involving surveys. Marshall used the "interview after combat" method which he developed in the Battle of Kwajalein Atoll and the Makin operation in late 1943 and early 1944. Units, or portions of units, were interviewed en masse for several hours a day after a battle.²⁶ Although Marshall preferred to conduct his interviews soon after the conflict, he at times did so six or more months after the event.²⁷

Samuel A. Stouffer and others conducted in excess of 10,000 classroom interview sessions with World War II soldiers. These veterans responded on questionnaires during a study of their attitudes toward army experience and war.²⁸ Many similar Korean War studies of attitudes and combat behavior exist. However, there exist no detailed analytical studies of American soldiers in Vietnam and their small arms volume of fire.

The sample populations for the two surveys used in this research cover the duration of the conflict and the spectrum of terrain types encountered. They are focused on the front line soldier who was likely to be in situations where use of

his weapon would be necessary. A summary of demographic data is in Table 1.

The officer survey of currently active duty lieutenant colonels and colonels with Vietnam platoon and company leadership experience acts as a basis for comparison with responses from the 1st Cavalry survey. The questions in the "leader" survey address the performance of the officers' men in combat. Questions are very similar in nature and wording to those in the second portion of the 1st Cavalry survey (questions regarding contemporaries' performance in battle).

The objective of looking at three populations (the 1st Cavalry respondent addressing himself, his responses regarding his fellow soldiers, and officer leaders responding reference their men) is to compensate for the innate biases in the sample populations.²⁹ The 1st Cavalry survey provides information both on the individual himself and others. A respondent may well be less likely to bias his answers regarding his contemporaries than those regarding himself. Finally, the leader survey gives a third look at the subject and can act to support or refute some or all of the results from the 1st Cavalry survey data.

Table 1 : Demographic Data Summary

	Veteran Survey	Leader Survey
BRANCH		
Infantry	71.2	69.8
Armor	0.8	11.6
Field Artillery	4.6	2.3
Aviation	4.2	NA
Medic	4.6	NA
Administrative	7.5	0.0
RTO/Signal	3.3	0.0
Corps of Engineers	0.0	11.6
Air Defense Artillery	0.0	4.7
Unknown	3.7	0.0
DUTY POSITION - Veteran Survey		
Enlisted - Combat	29.2	
Enlisted - SL or PSG	25.8	(squad leader or plt sgt)
Enlisted - MG	2.9	(machine gunner)
Enlisted - Non DF	19.2	(Not in a direct fire or combat position)
Officer	10.8	
Enlisted - Aviation	3.3	
Officer - Aviation	2.1	
Warrant - Aviation	2.5	
Unknown	4.2	
DUTY POSITION - Officer Survey		
Platoon Leader		58.1
Company Commander		69.8
(Note: some respondents served in both positions)		

Table 1 (continued) : Demographic Data Summary

	Veteran Survey	Leader Survey
TOURS IN VIETNAM (includes multiple tours)		
Pre - 1965	1.4	0.0
1965 or 1965 - 1966	10.9	5.1
1966 or 1966 - 1967	13.7	8.5
1967 or 1967 - 1968	16.1	13.6
1968 or 1968 - 1969	20.0	15.3
1969 or 1969 - 1970	21.1	22.0
1970 or 1970 - 1971	12.3	18.6
1971 or 1971 - 1972	3.9	16.9
1972	0.7	0.0

Notes: 1) Due to rounding, some columns may not add up to 100.0%.

2) Values for Tours in Vietnam are normalized to account for multiple tours.

Response data was input into a computer and analyzed using the statistical analysis software SPSS. The results of this analysis are in Annex C.

IV. Results of Study

So far as the records show, the question has never been raised by anyone: "During engagement, what ratio of fire can be expected from a normal body of well-trained infantry under average conditions of combat?"³⁰

S.L.A. Marshall
Men Against Fire

Unity is strength.³¹

Veteran Survey #27

The following analysis looks at two aspects of soldier performance during enemy engagements. First, the percentage of American soldiers who regularly engaged the enemy in Vietnam is determined. Second is an investigation of why men failed to fire in Vietnam combat. The analysis then continues with a consideration of study results and their training implications in preparing soldiers for combat. For purposes of brevity, references to the 1st Cavalry Division Association survey will hereafter be cited as the veteran survey. The survey of active duty officers with service as platoon leaders of company commanders will likewise be referred to as the leader survey.

The first area of soldier performance considered is the percentage of soldiers who engaged the enemy with their weapons. Eight questions address the issue in various manners, four in each of the two surveys. The results of these questions are summarized in Table 2.

In the first question, the veteran responds regarding his personal performance. Nine of 240 respondents (3.7%) never engaged the enemy with direct fire; therefore, 96.3% engaged the enemy at least once.

The second question applies specifically to a soldier's returning fire while in life-threatening situations. The American soldier returned fire roughly two-thirds of the time when he believed his life was endangered. Two considerations prevent this value from reflecting a typical weapons response in combat. First, several respondents addressed potential variation in defining "life-threatening." One veteran stated he once was wounded three times during an engagement but never felt his life was in danger. Another included circumstances where the head of a column in which he was walking was in contact although he himself was not receiving fire.

Table 2
Responses to Surveys - Engagement Participation

Question	Survey	Mean (Average)	Median
9) How many times during your tour(s) in Vietnam had you fire your weapon to engage the enemy with direct fire?	Veteran	96.3% of the respondents engaged the enemy at least once	16 to 20 times
11) What percentage of the number of times that you were in the life-threatening situation described in question 10 did you engage the enemy with your direct fire weapon?	Veteran	67.7	80
18) In situations where fellow soldiers should have placed direct fire on the enemy with individual weapons, what percentage normally did put out such fire?	Veteran	82.3	90
19) In situations where fellow soldiers should have placed direct fire on the enemy with crew-served weapons, what percentage normally did put out such fire?	Veteran	86.8	95

Table 2 (continued).

Responses to Surveys - Engagement Participation

Question	Survey	Mean (Average)	Median
7) In situations where your men should have placed direct fire on the enemy with individual weapons, what percentage normally did put out such fire?	Leader	83.6	90
8) In situations where your men should have placed direct fire on the enemy with crew-served weapons, what percentage normally did put out such fire?	Leader	90.9	95
9) During engagement, what percentage of fire can be expected from a normal body of well-trained infantry under average conditions of combat?	Leader	76.4	60
12) While in the life-threatening situation(s) described in question 10, what percentage of your men engaged the enemy with their direct fire weapons at least once during each such situation?	Leader	77.0	85

Secondly, although the question was meant to address only danger from enemy direct fire, many respondents included situations involving indirect fire, booby traps, or similar cases. In many such cases, returning fire with small arms may have been inappropriate. For example, the only means of retaliating to enemy indirect fire unaccompanied by a ground assault would have been by also using indirect or air support weapons systems. Due to these inconsistencies in interpreting this question, the result is not considered an effective measure of soldier willingness to engage the enemy with his weapon.

In the third and fourth questions in Table 2, the veteran estimates his fellow soldiers' reliability in engaging the enemy. The questions require separate estimates for soldiers equipped with individual weapons and those manning crew-served systems. The figures are encouraging for army leadership. Better than eight out of every ten men fired weapons while engaged with the enemy. Use of the median values increases the efficiency to a minimum of 9 of every 10 men (see footnote 32 for discussion of median versus mean as a measure of the center of data).

The first two questions in the leader survey are nearly identical to the individual and crew-served questions just discussed. Leader responses closely parallel those of the 1st Cavalry Division veterans. The medians are identical.

The results confirm the estimates of soldier reliability in both the individual and crew-served cases.

The seventh of the eight questions regarding engagement percentage is a direct extract from Marshall's Men Against Fire. Interestingly, the resultant value of 76% is below that for both individual and crew-served weapons in the leader responses. The median (80%) is also lower. The reasons for the lower values are unclear. The phrases "normal body of well-trained infantry" and "average conditions of combat" suffer the same lack of precision as does the previously discussed "life-threatening situation". The causes for the lower values may be attributable to interpretations of the question.

The final question and last of the leader survey questions is another worded for comparison with the veteran survey. It again addresses the issue of firing in a "life-threatening situation". In the veteran survey the respondent estimates "the percentage of times" that he engaged while in a life-threatening situation. In the leader survey officers respond as to the percentage of their men who engaged. This difference and previous comments pertaining to the phrase "life-threatening situation" and its various interpretations may explain the 9.3% difference in values between the two surveys' responses.³³

It remains to determine which of the above values best represents the percentage of men who engaged the enemy in

combat, to determine Vietnam's ratio of fire. Due to differing interpretations used in answering question 11 of the veterans survey ("life-threatening situation") and questions 9 and 12 of the leader survey ("percentage of fire... from a normal body of well-trained infantry" and "life-threatening situation"), the values from these queries are unlikely to provide the most accurate measure. It is notable that they are the lowest values and still exceed previous measures of engagement participation. The lowest of the values is triple that of Marshall's most optimistic World War II estimate.

Marshall states he based his estimates on "a showing of hands and questioning as to the number of rounds used, the targets fired upon, etc."³⁴ The 96.3% value at first appears to be analogous to Marshall's ratio of fire. He obtained his values by asking questions regarding actions or fire fights. The survey question resulting in the 96.3% value asks the soldier how many times he participated during the duration of his tour(s) in Vietnam. The questions are therefore fundamentally different. A survey respondent may have failed to fire in several engagements, but he still is one of the 96.3% who fired at least once. Due to the difference in time periods addressed by the studies, this survey question is not analogous to Marshall's ratio of fire. Additionally, while it does reflect what percentage of men fired their weapons while in Vietnam, it cannot be

considered an effective measure of percentage of men firing in given engagements. It ignores the inability of men to fire in some engagements, and of duties other than engaging the enemy which are essential to a unit's effectiveness and survival. Finally, it is overly optimistic. It is valid to conclude that the soldier who refuses to fire is in a small minority. It is deceiving to believe he is nonexistent.

The final set of 4 values consists of the two surveys' engagement estimates for individual and crew-served weapons personnel. It is these values which most closely approximate Marshall's ratio of fire. They focus on performance in single engagements; Marshall concentrated on single battles. Just as did Marshall's interviews, the questionnaire responses cover the complete range of terrain, time, threat, and other factors faced by American soldiers in the war.

Regarding the specific values themselves, the estimates from the veteran survey are the better measures. The greater variety of occupations and experiences in the veteran survey make those values the better choice. The percentage of the front-line manpower which engaged the enemy in a Vietnam engagement was therefore 82.3% for those equipped with individual weapons and 86.8% for men firing crew-served weapons. The conservative estimate, should a single value be sought, is the lower individual weapons estimate of 82.3%.³⁸

The causes for engagement participation being well above 80% could of themselves be the subject of a study. However, one characteristic of the Vietnam War which may have had a significant impact on participation is worthy of mention. Many of the engagements in Vietnam were ambushes or contacts in close terrain which demanded an immediate and high volume of fire for unit and individual survival. The option of staying in one's foxhole or similarly avoiding engagement did not exist in many situations. As such, the character of the engagement demanded fire from the American soldier.⁵⁶

A note regarding the difference in the values for engagement by soldiers armed with crew-served weapons and those with individual weapons is in order. One of Marshall's tenets was that heavy weapons operators fired a significantly higher percentage of the time than did soldiers armed with individual weapons.⁵⁷ In fact, one of the cures suggested for the hesitant rifleman was assignment to a heavy weapon.⁵⁸ Table 3 summarizes the results for both the veteran and leader surveys regarding this issue.

Table 3 : Summary of Responses on Veteran and Leader Surveys Regarding Individual and Crew-Served Weapons Engagement

	Veteran Estimate Mean (Median)	Leader Estimate Mean (Median)
Soldier equipped with		
Individual weapon	82.3 (90)	83.6 (90)
Soldier equipped with		
Crew-served weapon	86.8 (95)	90.9 (95)

The crew-served weapons operator is more likely to engage the enemy, but the values are very close.³⁷

Before terminating this discussion, it may be beneficial to determine the theoretical maximum value for fire participation. It is apparent from the previous discussion that not all members of a unit habitually engage the enemy in a fire fight. More importantly, most enemy contacts are of such a nature that not all of a unit is able to engage due to terrain, position, etc. In reality, combat in which all soldiers were able to engage the enemy would be

the exception rather than the rule. Therefore, the theoretical maximum value for participation during an engagement under most circumstances is less than 100%. A small sample of officers who served as platoon leaders in Vietnam were asked about the strength of their units, the number and type of attached personnel (e.g. medics), and which soldiers (based on duty positions) in this group normally did not fire during engagements. Using their estimates, a maximum value for participation was determined by averaging the results. The average was 91.3%, 9% above the veteran estimate for individual weapons participation in combat. The difference may be attributable to several factors. First, the leader survey tended to be slightly higher in its estimates of soldier participation than did its veteran counterpart. Second, the estimate is unit dependent. In this sample of officers, squad leaders habitually fired, whereas many veteran respondent squad leaders stated they had not fired on occasion due to other mission-essential tasks. Third, several officers gave estimates of their platoon strength (e.g. 30 to 50 personnel). Since a theoretical ceiling is sought, the author used the higher (more conservative) value of strength estimate which tended to increase the ceiling percentage.

Reasons for Failures to Fire

Some soldiers did not fire their weapons when the situation apparently deemed they should do so to protect themselves or add to unit fire power. Others fired rarely. Half of the respondents to the veterans survey had seen at least one case or another soldier failing to fire when he should have. The response from the leader survey is nearly identical. Many soldiers admitted their failure to fire on occasion when in a life-threatening situation. The reasons for this failure to fire are numerous; many depended on duty position and worked in the best interests of the unit and mission accomplishment.

The reasons for not engaging the enemy fall into two general groups. In the first group are the reasons dependent on duty position; the soldier should have been doing something other than firing his weapon to facilitate mission accomplishment. The second group includes all other reasons. Some of the latter are not deliberate and occur wherein the soldier may have fired were he able. Others are simply soldier failures.

There are men whose duty position precludes habitual small arms participation. Rather than focusing on enemy engagement themselves, squad and higher level leaders must ensure their men are responding to the situation properly.

They must also position subordinates, call for supporting systems, shift reserves, and accomplish other actions key to mission accomplishment or unit survival. The firepower put out by the unit is higher due to these efforts than were the leaders to always engage the enemy themselves. More importantly, the leaders direct unit firepower to areas where it is most needed.

Other duty positions which may preclude engagement are radio-telephone operator (RTO), forward observer (FO), and medic. Moreover, breaks in firing by other soldiers in given duty positions are also essential. Ammunition bearers, for example, may have to pause in their firing to resupply the crew-served weapon they service. Several respondents noted that leaders directed them to concentrate on primary duties such as RTO rather than get involved in direct fire with their weapons. The leader needs his RTO close by to facilitate rapid call for support or to relay status to other elements. The RTO frequently acts as the leader's temporary representative when immediate duties preclude the leader from talking on the radio. The RTO, therefore, must monitor incoming calls and respond in the leader's absence. Likewise, the forward observer's primary responsibility is to call for supporting indirect and possibly air support fires.

Another valid reason for failing to engage is the inability to fire without hitting friendly personnel or

civilians. Twenty-four veteran respondents, 10% of those returning questionnaires, cited cases where they could not engage targets due to the danger of fratricide or possible noncombatant injury. These situations occurred in all environments, but comments involving contact in forest terrain when lead elements of a file received fire were notable for their frequency.

Detection avoidance is the final duty position or assignment related reason for not engaging. Reasons for avoiding detection may be either mission related or otherwise. Some leaders gave orders not to engage the enemy with direct fire when their units were in fire bases or other defensive positions at night. This is because the enemy would perform reconnaissance by fire to determine weapons positions and the trace of the perimeter. They would fire into the position in hopes of causing American soldiers to return fire. The compromised locations could then be brought under automatic weapons or indirect fire. If the American unit was not well-disciplined, such reconnaissance by fire would reveal the entire trace of the perimeter to include the high value crew-served weapons positions. Enemy commanders could then direct their attacks against the most vulnerable portions of the American defense. American leadership countered this tactic by ordering their men to hold their fire unless specific conditions were met. Threats were engaged using indirect

fire, grenades, or claymore mines. Other legitimate cases in which the enemy was not engaged include friendly ambushes where the enemy was in strength too great for the ambush position to engage, long range reconnaissance patrols (LRRPs), and observation posts (OPs).

The line between mission related reasons for not engaging and other causes is a hazy one. In many cases whether or not a soldier should have or could have engaged was situationally dependent. Examples include cases where a soldier did not return fire because he was pinned down by enemy fire. Thirty-six (15%) of the respondents to the veteran survey had either personally experienced such a situation or had witnessed another soldier in one. The situation included both direct fire and other fires. In many cases the soldier was incapable of returning fire (as in instances where soldiers were within base camps while under indirect fire and therefore could not engage the enemy) or was under such heavy fire as to make such action impossible.

However, other soldiers were "pinned down" by fire that may have posed little danger to them. The preeminent cause of a soldier not returning fire in Vietnam was fear. Nearly half of the veteran survey respondents had seen one or more men not fire in a situation when he should have. From that group of men who had seen such an instance, 81.7% stated that fear ("the soldier 'froze'") was a cause, by far the

most commonly cited reason for failure to fire.⁴⁰ Being pinned down by fire may have been more a condition of perceived danger than actual physical danger in some instances.

In the case of Vietnam veterans, it was often fear of being shot that caused Americans not to return fire. If fear was the cause for not engaging, it was frequently because he was pinned down (and thus action on his part may have resulted in injury). Only 17 of 228 veteran respondents (7.5%) cited moral reasons as a cause of fellow soldiers not firing.⁴¹ Marshall also states fear was the primary cause of failure to fire. However, his was fear of an entirely different nature. Marshall stated that fear of physical harm was not the primary cause of World War II lack of engagement:

The failure of the average soldier to fire is not (author's emphasis) in the main due to conscious recognition of the fact that the act of firing may entail increased exposure. It is a result of a paralysis which comes of varying fears.⁴²

It is the moral domain that dominated the World War II soldier's fears in Marshall's study. He finds that western aversion to killing precluded engagement by some men:

He is what his home, his religion, his schooling, and the moral code and ideals of his society have made him. The Army cannot unmake him. It must reckon with the fact that he comes from a civilization in which

aggression, connected with the taking of life, is prohibited and unacceptable...This is his great handicap when he enters combat. It stays his trigger finger even though he is hardly conscious that it is a restraint upon him.⁴³

Another reason for failing to engage is lack of a visible target. Many soldiers failed to fire because they could not see the enemy soldier (27 of 240 or 11.3% of the veteran respondents). There is a common thread in recent studies here. Marshall noted the lack of visible targets on the World War II battlefield and the related failure of soldiers to fire when no enemy are visually acquired.⁴⁴ Again, in Korea, Marshall observed in his ORO study that one reason the soldiers did not engage is that they could not see an enemy target and thought they should wait until they could.⁴⁵

Finally, 30 of the 240 (12.5%) veteran survey respondents had either witnessed or personally experienced a weapons malfunction during an engagement while in combat in Vietnam. One veteran stated he had seen 8 fellow squad members die because of early model M16 malfunctions.⁴⁶ The problems were blamed on either the inherent low quality of the weapons (normally the M16) or failure to properly clean the rifles.

There are two primary lessons to learn from these weapons failures. First, at the institutional level, men must be properly trained in weapons use and maintenance

before going into combat. This was not always the case in Vietnam.⁴⁷ Secondly, soldiers must clean and maintain their weapons. Leaders must ensure their subordinates maintain their weapons. The effective infantry rifleman consists of a man and his weapon. Both must be capable of enemy engagement.

Many other reasons were cited by veterans for their or another's not having engaged the enemy on one or more occasions. A summary of such reasons is at Annex D.

V. Implications for Training

It is immensely important that no soldier, whatever his rank, should wait for war to expose him to those aspects of active service that amaze and confuse him when he first comes across them. If he has met them once, they will begin to be familiar to him.⁴⁸

Carl von Clausewitz
On War

In combat situations, your desire to live overrides your brain.⁴⁹

Veteran Survey #81

The results of this study are encouraging. More American soldiers engaged the enemy in combat than historical studies would have led most to believe. Yet there are men who did not fire when they should have. Training did not always properly prepare the American soldier for combat in Vietnam. The remainder of this study looks at how the army can better train its men for future wars.

The final question on both the veteran and leader surveys asked the respondent to comment on "how the armed services can better train its soldiers to use their weapons in combat". A synthesis of these comments is at Annex E.

Respondents varied on their views toward basic marksmanship training, some regarding it as good and stating more would be better. Others found their rifle training

inadequate. The latter group's comments fell into two broad categories: those pertaining to the weapons training environment and those regarding the weapons training itself. Common to responses was the need to instill in the soldier confidence in his weapons and weapons skills. Whether this was on the range, in the classroom, or through the use of reaction courses, veterans saw the need for soldiers to believe in their weapons and their ability to use these weapons. Studies in the Korean War found such confidence lacking. In one Korean study a third of the soldiers interviewed believed at least half of newly arrived men could not provide effective support during their first combat engagement.⁵⁰ New soldiers themselves lacked confidence in their weapons. "In many cases the infantryman seemed to have little confidence in his training and to have been unfamiliar with the weapons assigned him for use in combat."⁵¹

Many veterans cited a need for training in environmental conditions better approximating actual combat than those they saw in basic combat training (BCT) or advanced individual training (AIT). While many of the comments were nonspecific, such as "make training more like combat", others were clear in their advice. Several soldiers recommended courses similar to police ranges where the individual works through the "terrain" and engages pop-up targets. Similarly, others felt training in "quick

"kill" techniques such as shooting from the hip were essential in properly reacting to an ambush or meeting engagement. These courses were occasionally described in great detail. Some recommendations included grenade engagement and above-ground (sniper) targets in the courses with a requirement for periodic refresher runs to retain engagement skills. These courses not only train the soldier in combat marksmanship, but also train him how to engage the enemy.

Another common recommendation was weapons training with multiple weapons. The potential need to use another weapon on the battlefield, or to take over for a wounded unit member, demanded that every soldier know how to use the full range of weapons he might encounter in combat.⁵² Several respondents included enemy weapons in this category; others recommended that rear area as well as front line soldiers receive the training. In future wars, it is likely that the front will be as poorly defined as it was in Vietnam. The coming conflicts' rear area battles will be won by soldiers who can fight, regardless of Military Occupational Specialty (MOS). They need to know how to use a full range of friendly and enemy weapons, just as do their counterparts on other parts of the battlefield. Additionally, all soldiers need training in the maintenance of these weapons and the ammunition they fire.

Some soldiers stated that more training while receiving live fire was necessary. The risk to the trainee did not go unnoticed, but the benefit of having experienced fire in a relatively safe environment was deemed worth the risk. One respondent put it succinctly:

There could be more training with live rounds. I know soldiers will get hurt and killed in this kind of training, but they will be more ready to get into the fight. It took a little while for new soldiers over there to get the feel for combat. Sometimes they didn't live that long.³³

Adjustment to a new unit is traumatic in peacetime. The new arrival to a unit suffers tremendous pressure in a combat environment. Added to the stress of trying to integrate one's self in a tightly bonded organization is fear for one's survival. Then comes the first enemy contact. The sudden rush of violent noise and projectiles, perhaps the shock of seeing men maimed and killed, may overwhelm the recent arrival. If the squad has received several such men, their inability to react properly could jeopardize the entire unit's survival:

My experience found that the basic reason for soldiers to fail to return enemy fire under combat was usually during their 1st firefight experience and was mainly due to fear or the unsure feeling of how to respond.³⁴

There is a need to expose these men to an approximation of these conditions before they reach combat. It is possible through the use of live fire courses, artillery and grenade simulators, moulage kits and interchanging members of different BCT squads. Properly run courses such as these would have few injuries, many fewer than the participants would suffer or cause in combat without the training.

Basic training failed some of America's early Vietnam veterans. The M16 was a new weapon in the mid-1960's. Soldiers were at times trained in the United States with the M14 (the predecessor to the M16) only to receive a M16 upon arrival in Vietnam. On occasion, these soldiers never received training with the new weapon, but were expected to teach themselves:

In 1966, during my basic training & also during my AIT, the only weapon I saw or handled was the M-14 rifle. On arrival in Vietnam I was issued an M-16 rifle & was told that it was easy to field strip & that I would catch on. No instruction or zeroing in was done.⁵³

Similarly,

I was trained...on the M14, then sent to V.N. and handed a M16. I didn't know the first thing about the weapon, wasn't told how to fire or clean it. I wasn't even issued ammo until I complained. I asked for directions and was told to see my sergeant...being a Pfc I wasn't going to bother a 1st Sgt. Our company went out in the field 3 days later and that was that.⁵⁴

This was certainly not the norm in Vietnam. However, it points to individual leader failures and belies a greater problem. No soldier should go into combat unless qualified with his weapon. If weapons production precludes having sufficient weapons for issue to both training centers and combat units, then conduct training for new arrivals before they go to their units in-country or issue them the weapon with which they trained. Rare were the instances in Vietnam when the action was so intense as to preclude giving a man time to receive weapons training at a central training facility.

Finally, the American soldier deserves trained leadership. Good combat leadership is the ultimate combat multiplier. It is the leader who trains his men when not in contact and who gets the most from his unit when in action. The rifleman, the machine gunner, the grenadier, and their fellow soldiers on the battlefield are only equal to the sum of their strengths if not under the direction of competent leadership. It is the squad leader, the platoon leader, and those commanders at higher levels who must know the capabilities of men and their weapons and mold them into a synergistic whole. Leaders must receive training that permits them to win the engagements which make up the battle victories needed to win wars.

VI. Conclusions

(1) numerical combat data is contradictory and confusing, and (2) it is very easy to draw erroneous conclusions from such data.⁵⁷

Colonel T.N. Dupuy
Numbers, Predictions and War

Future wars may be quite unlike the last in terms of environment, threat, and other conditions. However, there is little reason to believe that the American soldier will be any less prepared to engage the enemy with small arms direct fire than was his Vietnam counterpart. Methods of training are effectively the same. Army leaders are aware of the potential problem of failure to engage and thus are likely to counteract it. Finally, the quality of today's soldier is very high. He learns well and responds well to discipline. General Vuono, Chief of Staff of the Army, states "Today the soldiers in our Army are by every measure the best ever."⁵⁸

There are other aspects of this study which leaders should consider before applying its results to their units. The following comments address logical concerns and discuss their impacts on study applicability to present training and future combat.

First, percentage of soldiers participating in engagements is not the same as volume of fire. A soldier

may fire occasionally during a firefight and thus be one of many who participated, but he may fail to put out enough fire to have any detrimental effect on the physical or psychological well-being of the enemy. There is a difference between the two, but few would argue that a unit with over 80% of its men participating in an engagement would fail to put out as near an effective volume of fire as is possible. Yet there is a danger in equating effective volume of fire with effective fire. A unit with poor fire discipline, poor marksmanship, or poor leadership may put out a tremendous volume of fire, little of which hits or intimidates the enemy.

Secondly, veterans who responded to study questionnaires left Vietnam from 15 to 22 years ago, some longer. Comments reflected that a few had forgotten or had difficulty remembering weapons nomenclatures or terms such as "direct fire". Although the duration between experiences and responses was considerable, the results should not have suffered greatly. The questionnaires did not ask for exceptional detail, but rather recall of basic information and the giving of estimates. Errors of memory would tend to fall on both the high and low sides of true values, and with samples totaling nearly 300 respondents, the averages can be expected to be good approximations of reality. This conclusion is supported by the similarity in values on like questions appearing on the veteran and leader surveys.

Third, measures in this study are the result of a focus on front line units (the term is used in the colloquial sense; Vietnam in many cases had no front lines in the traditional meaning of the term). Application to other units or units equipped with significantly different weapons systems (e.g. tank units) should include consideration of the differences between those groups and the survey respondents.

Finally, while the participation of the American soldier in Vietnam is very encouraging, leaders can not become lax in their checking for fire participation in combat. Although over 80% fired in engagements, half of the veteran respondents had seen a fellow soldier fail to fire in those situations. Not all of those failures had legitimate causes.

The real significance of this study is not that 80% or more of a unit in Vietnam fired its weapons. What is critical is that the small arms-equipped American unit was a force which was willing to engage the enemy. The tactics with which the American Army trains and fights rely on riflemen putting out an effective volume of fire. The army of today, like its Vietnam predecessor, must ensure it trains those riflemen to fight and win.



DEPARTMENT OF THE ARMY
U.S. ARMY COMMAND AND GENERAL STAFF COLLEGE
FORT LEAVENWORTH, KANSAS 66021-5000

August 26, 1987

REF ID:
ATTENTION OF

School of Advanced Military Studies

Dear Veteran:

I am conducting research on American fighting men and their use of weapons in Vietnam. Enclosed are a short survey and an envelope for the survey's return.

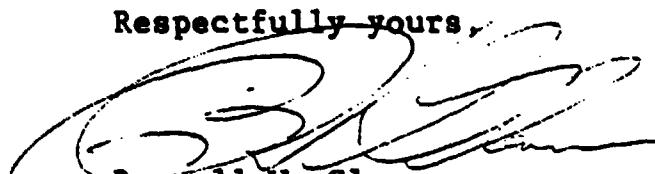
The questionnaire should take approximately 10-15 minutes to complete. No stamp is necessary in order to return it; just put the completed survey in the envelope provided and drop it in the mail.

I will use the results of the survey to analyze the effectiveness of our training in preparing ground-based personnel for combat. Your response assists me in work I trust will benefit our men and women in uniform in the years to come.

Please note that any reference to "soldier" in the survey refers to a member of any of the armed services, regardless of rank.

Due to the suspense on research completion, I would appreciate a prompt response. Thank you for your assistance.

Respectfully yours,



Russell W. Glenn
Major, U.S. Army

Enclosure

INSTRUCTIONS: Fill in the blanks or check the appropriate box as necessary. If you desire to make comments on a specific question and insufficient space is available, continue at the end of the survey or on additional sheets of paper. Please specify which question you are continuing by putting the number of the question where the comment started.

IMPORTANT PRELIMINARY CONDITION: If you were never stationed in Southeast Asia during the Vietnam War, or if you did not serve in a position where exposure to enemy direct fire was possible, check the "Does not apply" block below. You need not complete the remainder of the survey; please put it in the envelope provided and mail it. All other persons please continue with the remainder of the survey.

Does not apply

1) With what unit(s) did you serve in Vietnam (e.g. 1/18 Inf Bn, 1st Inf Div)?

2) What was your MOS/job specialty (enlisted) or branch (officer)?

3) What job assignment(s) did you hold while in Vietnam?

4) When did you serve in Vietnam (e.g. June, 1965 - June, 1966)?

5) How did you enter the service prior to your assignment to Vietnam?

Voluntary enlistment Drafted

6) Where did you receive your basic training (officers give source of commission)?

7) Where did you receive your advanced individual training (enlisted only)?

8) What was your primary direct fire weapon during your service in Vietnam?

M16 M203 M60 .45 pistol

other (please specify) _____

9) How many times during your tour(s) in Vietnam did you fire your weapon to engage the enemy with direct fire?

0 1-5 6-10 11-15 16-20

more than 20 (please specify your best estimate: ___)

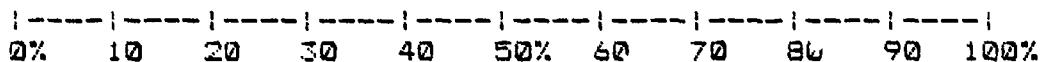
10) How many times were you in a life-threatening situation due to enemy direct fire?

0 1-5 6-10 11-15 16-20

more than 20 (please specify your best estimate: ___)

11) What percentage of the number of times that you were in the life-threatening situations described in question 10 did you engage the enemy with your direct fire weapon? (Place check mark or X at your estimate)

I was never in such a situation

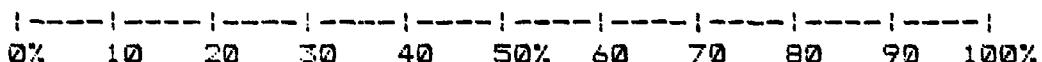


12) If there were times when you were in a life-threatening situation and did not fire your weapon, what were your reasons for not firing?

Does not apply Comments follow

13) If you carried a M16 or M203, what percentage of the time did you fire in the full automatic mode? (Place check mark or X at your estimate)

I did not carry either weapon



14) If you never engaged the enemy with your weapon, why did you not do so?

never in a situation other (please explain)
where it was appropriate

15) What type of terrain were you in when you engaged the enemy with your direct fire weapon? (Check all that apply)

I never engaged enemy jungle rice paddy or open area

civilian built-up area fire base or military installation

other (please specify) _____

16) Did you ever see another soldier not fire his weapon in combat when he should have?

Yes No

17) Why do you think he/they failed to fire the weapon(s)? (Check all that apply)

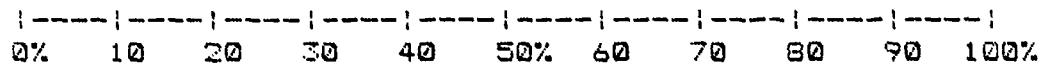
I never saw such a situation

I don't know fear (the soldier "froze")

moral conviction other (please explain)

18) In situations where fellow soldiers should have placed direct fire on the enemy with individual weapons, what percentage normally did put out such fire? (Place check mark or X at your estimate)

I never was in such a situation.



19) In situations where fellow soldiers should have placed direct fire on the enemy with crew-served weapons, what percentage normally did put out such fire? (Place check mark or X at your estimate)

I was never in such a situation

-----|-----|-----|-----|-----|-----|-----|-----|-----|
0% 10 20 30 40 50% 60 70 80 90 100%

20) What percentage of the soldiers in your unit regularly wasted ammunition through poor fire discipline or because they were "trigger happy"? (Place check mark or X at your estimate)

-----|-----|-----|-----|-----|-----|-----|-----|-----|
0% 10 20 30 40 50% 60 70 80 90 100%

21) Do you have any suggestions/comments pertaining to this questionnaire? Continue your comments on the reverse side or add sheets as necessary.

No, I have no comments Yes, comments follow

22) Do you have any comments on how the armed services can better train its soldiers to use their weapons in combat? Continue your comments on the reverse side or add sheets as necessary.

No, I have no comments Yes, comments follow



DEPARTMENT OF THE ARMY
U.S. ARMY COMMAND AND GENERAL STAFF COLLEGE
FORT LEAVENWORTH, KANSAS 66021-5000

September 14, 1987

REPLY TO
ATTENTION OF

School of Advanced Military Studies

Dear Sir:

The enclosed survey will assist in my research done as a student in the School of Advanced Military Studies. I would appreciate your taking the few minutes necessary to respond and to write any additional comments you may deem appropriate. The envelope provided can be sent through the message center to return the completed questionnaire.

This questionnaire pertains only to officers who served as platoon leaders, company commanders, or in equivalent positions in Vietnam. Please respond to questions based on your experience while in those positions.

Your anonymity is assured.. I have no need for your address or name on the questionnaire.

Due to the suspense on research completion, I would appreciate your responding as soon as possible.

Thank You.

Respectfully Yours,

Russell W. Glenn
Major, Engineers
Student, School of Advanced
Military Studies

LEADER SURVEY

INSTRUCTIONS: Fill in the blanks or check the appropriate box as necessary. If you desire to make comments on a specific question and insufficient space is available, continue at the end of the survey or on additional sheets of paper. Please specify which question you are continuing by putting the number of the question where the comment started.

IMPORTANT PRELIMINARY CONDITION: If you were never stationed in Southeast Asia during the Vietnam War, or if you did not serve in a position where exposure to enemy direct fire was possible, check the "Does not apply" block below. You need not complete the remainder of the survey; please put it in the envelope provided and mail it. All other persons please continue with the remainder of the survey.

Does not apply

1) With what unit(s) did you serve in Vietnam (e.g. 1/18th Inf Battalion, 1st Inf Div)?

2) What was your branch while assigned in Vietnam?

3) What job assignment(s) did you hold while in Vietnam?

4) When did you serve in Vietnam (e.g. June, 1965 - June, 1966)?

5) Did you ever see a soldier not fire his weapon in combat when he should have?

I never saw a soldier in combat (Go to question 14)

Yes No

6) Why do you think he/they failed to fire the weapon(s)? (Check all that apply)

I do not know fear (the soldier "froze")

moral conviction other (please explain)

7) In situations where your men should have placed direct fire on the enemy with individual weapons, what percentage normally did put out such fire? (Place checkmark or X at your estimate)

I never saw my men in such a situation

-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	
0%	10	20	30	40	50%	60	70	80	90	100%

8) In situations where your men should have placed direct fire on the enemy with crew-served weapons, what percentage normally did put out such fire? (Place checkmark or X at your estimate)

I never saw my men in such a situation

-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	
0%	10	20	30	40	50%	60	70	80	90	100%

9) During engagement, what percentage of fire can be expected from a normal body of well-trained infantry under average conditions of combat? (Place checkmark or X at your estimate)

I do not know

-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	
0%	10	20	30	40	50%	60	70	80	90	100%

10) What type of terrain was your unit in when you engaged the enemy with direct fire weapons? (Check all that apply)

My unit never engaged the enemy with direct fire jungle rice paddy or open area

civilian built-up area fire base or military installation

other (please specify) _____

11) How many times did you see your men in a life-threatening situation due to enemy direct fire?

I never saw my men in such a situation
(Go to question 13)

0 1-5 6-10 11-15 16-20

more than 20 (please specify your best estimate: ___)

12) While in the life-threatening situation(s) described in question 11, what percentage of your men engaged the enemy with their direct fire weapons at least once during each such situation? (Place a checkmark or X at your estimate)

-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	
0%	10	20	30	40	50%	60	70	80	90	100%

13) What percentage of the soldiers in your unit regularly wasted ammunition through poor fire discipline or because they were "trigger happy"? (Place checkmark or X at your estimate)

0%	10	20	30	40	50%	60	70	80	90	100%
----	----	----	----	----	-----	----	----	----	----	------

14) Do you have any suggestions/comments pertaining to this questionnaire? Continue comments on reverse side or add sheets as necessary.

No, I have no comments Yes, comments follow

15) Do you have any comments on how the armed services can better train its soldiers to use their weapons in combat? Continue comments on reverse side or add sheets as necessary.

No, I have no comments Yes, comments follow

Annex C: Summary of Numerical Analysis

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I. Verbal Description of Analytical Method and Calculations

Data from both the veteran and leader surveys were analyzed using the SPSSX Information Analysis System and manually executed hypothesis tests. This annex includes data analyses for survey questions addressed in the main body of this paper; data for questions not discussed in the main text are excluded.

The author used two sample populations in obtaining his data. The veteran survey population consisted of Vietnam veterans who were members of the 1st Cavalry Division Association. From this group, selected combat units were chosen and 500 names taken from the resultant list. The response rate for this survey was 52.5%. The second population included lieutenant colonels and colonels on active duty who were stationed at Fort Leavenworth, Kansas at the time of the survey (late summer and early fall, 1987). The population included only those individuals who had served as either a platoon leader, company commander, or both in the Vietnam War. Sixty-three surveys were sent. The response rate for this leader survey was 75.0%.

Some demographic data for both the veteran and leader surveys were limited to one computer data entry. Veterans who had served with more than one unit had only one entry input for unit, normally the first response listed in the survey. Likewise, individuals with multiple training locations for BCT, AIT, or officer training had only one location entered (normally the first listed). Many soldiers in the veteran survey had served in several duty positions (e.g. rifleman, squad leader, platoon sergeant). Only one duty entry per respondent was entered for analysis. If the individual had served in a leadership position, his entry so noted. Otherwise the duty position entry was entered in the manner which appeared most appropriate (based on time in a position or other factors).

Pertinent data analyses for questions from both surveys follows. Additionally, Table C-1 summarizes the results of 4 hypothesis tests.

Table C-1: Comparison of Individual and Crew-served Fire Percentages for Veteran and Leader Surveys

Null Hypothesis (H_0)	Level of Significance	Result
$U_{Vi} = U_{Vc}$.05	Reject H_0 and conclude means are not equal
$U_{Li} = U_{Lc}$.05	Reject H_0 and conclude means are not equal
$U_{Vi} = U_{Li}$.05	Fail to Reject H_0 and conclude means are equal
$U_{Vc} = U_{Lc}$.05	Reject H_0 and conclude means are not equal
where U_{Vi} is mean percentage of soldiers armed with individual weapons who fired their weapons at the enemy. Data from veteran survey responses (reference veteran survey question #18)		
where U_{Vc} is mean percentage of soldiers armed with crew-served weapons who fired their weapons at the enemy. Data from veteran survey responses (reference veteran survey question #19)		
where U_{Li} is mean percentage of soldiers armed with individual weapons who fired their weapons at the enemy. Data from leader survey responses (reference leader survey question #7)		
where U_{Lc} is mean percentage of soldiers armed with crew-served weapons who fired their weapons at the enemy. Data from leader survey responses (reference leader survey question #8)		

Hypothesis test results reflect a statistically significant difference between percentage of fire put out by soldiers armed with individual and crew-served weapons. However, although the differences between the two groups of soldiers are statistically significant, the values are close enough that the impact of such a difference on the battlefield is minimal.

Comparison of the mean values for percentage of fire from soldiers equipped with individual weapons between the two surveys shows no significant difference. Comparison of the means for crew-served equipped soldiers shows the leader survey mean to be higher. Therefore, the mean percentage for crew-served equipped soldiers may be slightly higher than the veteran survey value. However, the median values for individual and crew-served percentages are identical for both surveys (90.0% for individual weapons and 95.0% for crew-served weapons). The author considers the median as a better measure of the center of data for these questions.

II. Demographic Data - Veteran Survey

UNIT UNIT OF SERVICE IN 1 CAV

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
OTHER/NO RESPONSE	0	29	12.1	12.1	12.1
1/7 CAV	1	25	10.4	10.4	22.5
2/7 CAV	2	25	10.4	10.4	32.9
5/7 CAV	3	9	3.7	3.7	36.7
1/8 CAV	4	22	9.2	9.2	45.8
2/8 CAV	5	25	10.4	10.4	56.3
1/12 CAV	6	21	8.8	8.8	65.0
2/12 CAV	7	30	12.5	12.5	77.5
1/9 CAV	8	32	13.3	13.3	90.8
2/5 CAV	9	12	5.0	5.0	95.8
1/5 CAV	10	9	3.7	3.7	99.6
BDE/DIV STAFF	11	1	.4	.4	100.0
		-----		-----	
		TOTAL	240	100.0	100.0
VALID CASES	240	MISSING CASES	0		

BRANCH BRANCH

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
INF	1	171	71.2	74.0	74.0
MEDIC	2	11	4.6	4.8	78.8
AVIATION	3	10	4.2	4.3	83.1
ARMOR	4	2	.8	.9	84.0
FA	5	11	4.6	4.8	88.7
ADMIN	6	18	7.5	7.8	96.5
RTO/SIGNAL	7	8	3.3	3.5	100.0
	0	9	3.7	MISSING	
		-----		-----	
		TOTAL	240	100.0	100.0
VALID CASES	231	MISSING CASES	9		

DUTY POSITION

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
EM-COMBAT	1	70	29.2	30.4	30.4
EM-SQD LDR OR PSG	2	62	25.8	27.0	57.4
EM-NON DF/NON COMBAT	3	46	19.2	20.0	77.4
OFFICER	4	26	10.8	11.3	88.7
EM - AVIATION	6	8	3.3	3.5	92.2
OFF - AVIATION	7	5	2.1	2.2	94.3
WO - AVIATION	8	6	2.5	2.6	97.0
EM - MACHINEGUNNER	9	7	2.9	3.0	100.0
	0	10	4.2	MISSING	
		-----		-----	
		TOTAL	240	100.0	100.0
VALID CASES	230	MISSING CASES	10		

PERIOD1 FIRST OR ONLY TOUR

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
1965 OR 1965-66	1	31	12.9	12.9	12.9
1966 OR 1966-67	2	37	15.4	15.4	28.3
1967 OR 1967-68	3	40	16.7	16.7	45.0
1968 OR 1968-69	4	54	22.5	22.5	67.5
1969 OR 1969-70	5	50	20.8	20.8	88.3
1970 OR 1970-71	6	21	8.8	8.8	97.1
1971 OR 1971-2	7	2	.8	.8	97.9
1972	8	1	.4	.4	98.3
1964-65 OR BEFORE	9	4	1.7	1.7	100.0
		-----		-----	
		TOTAL	240	100.0	100.0
VALID CASES	240	MISSING CASES	0		

PERIOD2 SECOND TOUR

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
1966 OR 1966-67	2	2	.8	5.7	5.7
1967 OR 1967-68	3	6	2.5	17.1	22.9
1968 OR 1968-69	4	2	.8	5.7	28.6
1969 OR 1969-70	5	9	3.7	25.7	54.3
1970 OR 1970-71	6	11	4.6	31.4	85.7
1971 OR 1971-2	7	4	1.7	11.4	97.1
1972	8	1	.4	2.9	100.0
	0	205	85.4	MISSING	
		-----		-----	
		TOTAL	240	100.0	100.0
VALID CASES	35	MISSING CASES	205		

PERIOD3 THIRD TOUR

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
1968 OR 1968-69	4	1	.4	12.5	12.5
1970 OR 1970-71	6	3	1.3	37.5	50.0
1971 OR 1971-2	7	4	1.7	50.0	100.0
	0	232	96.7	MISSING	
		-----		-----	
		TOTAL	240	100.0	100.0
VALID CASES	8	MISSING CASES	232		

PERIOD4 FOURTH TOUR

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
1969 OR 1969-70	5	1	.4	50.0	50.0
1971 OR 1971-2	7	1	.4	50.0	100.0
	0	238	99.2	MISSING	
		-----		-----	
		TOTAL	240	100.0	100.0
VALID CASES	2	MISSING CASES	238		

VALUE LABEL	VALUE	FREQUENCY	PERCENT	PERCENT	PERCENT
VOLUNTEER	0	129	53.8	54.2	54.2
DRAFTEE	1	109	45.4	45.8	100.0
	9	2	.8	MISSING	
		-----	-----	-----	
		TOTAL	240	100.0	100.0
VALID CASES	238	MISSING CASES	2		

BASIC LOC OF BASIC TNG/SOURCE OF COMM

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
FORT CAMPBELL	0	20	8.3	8.5	8.5
FORT BENNING	1	15	6.3	6.4	14.8
FORT POLK	2	18	7.5	7.6	22.5
FORT ORD	3	11	4.6	4.7	27.1
FORT DIX	4	25	10.4	10.6	37.7
CAMP CHAFEE	5	1	.4	.4	38.1
FORT KNOX	6	22	9.2	9.3	47.5
FORT JACKSON	8	18	7.5	7.6	55.1
FORT LEWIS	9	14	5.8	5.9	61.0
FORT GORDON	10	11	4.6	4.7	65.7
FORT WOLTERS, TX	11	2	.8	.8	66.5
FT LEONARDWOOD	12	25	10.4	10.6	77.1
FORT BLISS	14	12	5.0	5.1	82.2
FORT SILL	16	1	.4	.4	82.6
SHEPPARD FIELD, TX	18	1	.4	.4	83.1
KEESLER FIELD, MISS	22	1	.4	.4	83.5
FORT HOOD	23	1	.4	.4	83.9
FORT BRAGG	25	7	2.9	3.0	86.9
FORT CARSON	27	3	1.3	1.3	88.1
COMM IN RES	55	1	.4	.4	88.6
DIRECT COMM	66	2	.8	.8	89.4
OCS	77	16	6.7	6.8	96.2
ROTC	88	7	2.9	3.0	99.2
USMA	99	2	.8	.8	100.0
	44	4	1.7	MISSING	
		-----	-----	-----	
		TOTAL	240	100.0	100.0
VALID CASES	236	MISSING CASES	4		

AIT LOCATION OF AIT

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
FORT CAMPBELL	0	1	.4	.4	.4
FORT BENNING	1	5	2.1	2.2	2.6
FORT POLK	2	58	24.2	25.3	27.9
FORT ORD	3	24	10.0	10.5	36.4
FORT DIX	4	10	4.2	4.4	42.8
FORT KNOX	6	10	4.2	4.4	47.2
FORT SAM HOUSTON	7	9	3.7	3.9	51.1
FORT JACKSON	8	16	6.7	7.0	58.1
FORT LEWIS	9	13	5.4	5.7	63.8
FORT GORDON	10	19	7.9	8.3	72.1
FT LEONARDWOOD	12	2	.8	.9	72.9
FORT BLISS	14	1	.4	.4	73.4
FORT EUSTIS	15	2	.8	.9	74.2
FORT SILL	16	8	3.3	3.5	77.7
FORT LEE	17	3	1.3	1.3	79.0
SCOTT FIELD, ILL	19	1	.4	.4	79.5
FORT RUCKER	20	4	1.7	1.7	81.2
FORT MCCLELLAN	21	8	3.3	3.5	84.7
FORT HOOD	23	1	.4	.4	85.2
ABERDEEN	24	2	.8	.9	86.0
FORT BRAGG	25	1	.4	.4	86.5
CAMP HOLABIRD, MD	26	1	.4	.4	86.9
FORT CARSON	27	2	.8	.9	87.8
FORT MONMOUTH	28	1	.4	.4	88.2
NA	99	27	11.3	11.8	100.0
	88	11	4.6	MISSING	
		-----		-----	
		TOTAL	240	100.0	100.0
VALID CASES	229	MISSING CASES	11		

TERJUNG TYPE OF TERRAIN - JUNGLE

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
DID NOT FIGHT IN	0	26	10.8	10.8	10.8
FOUGHT IN	1	214	89.2	89.2	100.0
		TOTAL	240	100.0	100.0
VALID CASES	240	MISSING CASES	0		

TEROPEN TYPE OF TERRAIN - PADDY OR OPEN

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
DID NOT FIGHT IN	0	64	26.7	26.7	26.7
FOUGHT IN	1	176	73.3	73.3	100.0
		TOTAL	240	100.0	100.0
VALID CASES	240	MISSING CASES	0		

TERBILT TYPE OF TERRAIN - CIV BUILT-UP

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
DID NOT FIGHT IN	0	161	67.1	67.1	67.1
FOUGHT IN	1	79	32.9	32.9	100.0
		TOTAL	240	100.0	100.0
VALID CASES	240	MISSING CASES	0		

TERMIL TYPE TERR - MIL INSTIL OR FIREBASE

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
DID NOT FIGHT IN	0	79	32.9	32.9	32.9
FOUGHT IN	1	161	67.1	67.1	100.0
		TOTAL	240	100.0	100.0
VALID CASES	240	MISSING CASES	0		

TEROTHR TYPE OF TERRAIN - OTHER

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
DID NOT FIGHT IN	0	174	72.5	72.5	72.5
FOUGHT IN	1	66	27.5	27.5	100.0
		TOTAL	240	100.0	100.0
VALID CASES	240	MISSING CASES	0		

WEAPON1 WEAPON CARRIED

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
M16/15	0	205	85.4	85.8	85.8
M203	1	1	.4	.4	86.2
M60	2	15	6.3	6.3	92.5
.45	3	6	2.5	2.5	95.0
OTHER	4	7	2.9	2.9	97.9
SHOTGUN	5	3	1.3	1.3	99.2
M79	6	2	.8	.8	100.0
	7	1	.4	MISSING	
	9	1			
		-----	-----	-----	-----
		TOTAL	240	100.0	100.0
VALID CASES	239	MISSING CASES	1		

WEAPON2 ADDITIONAL WEAPON (SECOND) CARRIED

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
M203	1	4	1.7	4.3	4.3
M60	2	41	17.1	43.6	47.9
.45	3	28	11.7	29.8	77.7
OTHER	4	10	4.2	10.6	88.3
M14	5	4	1.7	4.3	92.6
SHOTGUN	6	2	.8	2.1	94.7
M79	7	5	2.1	5.3	100.0
	9	146	60.8	MISSING	
		-----	-----	-----	-----
		TOTAL	240	100.0	100.0

VALID CASES 94 MISSING CASES 146

WEAPONS ADDITIONAL WEAPON (THIRD) CARRIED

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
M60	2	3	1.3	7.5	7.5
.45	3	13	5.4	32.5	40.0
OTHER	4	12	5.0	30.0	70.0
M14	5	1	.4	2.5	72.5
SHOTGUN	6	2	.8	5.0	77.5
M79	7	9	3.7	22.5	100.0
	9	200	83.3	MISSING	
		-----	-----	-----	-----
		TOTAL	240	100.0	100.0

VALID CASES 40 MISSING CASES 200

WEAPONS ADDITIONAL WEAPON (FOURTH) CARRIED

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
.45	3	1	.4	7.1	7.1
OTHER	4	4	1.7	28.6	35.7
M14	5	1	.4	7.1	42.9
SHOTGUN	6	2	.8	14.3	57.1
M79	7	6	2.5	42.9	100.0
	9	226	94.2	MISSING	
		-----	-----	-----	-----
		TOTAL	240	100.0	100.0

VALID CASES 14 MISSING CASES 226

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III. Demographic Data - Leader Survey

UNIT1 UNIT OR FIRST UNIT

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
1 ID	1	4	9.3	9.3	9.3
101 DIV	2	8	18.6	18.6	27.9
25ID	3	3	7.0	7.0	34.9
173BDE	4	3	7.0	7.0	41.9
AMERICAL	5	2	4.7	4.7	46.5
1 CAV DIV	6	8	18.6	18.6	65.1
1-44 ADA	9	1	2.3	2.3	67.4
4ID	10	4	9.3	9.3	76.7
198BDE	11	1	2.3	2.3	79.1
82 DIV	12	1	2.3	2.3	81.4
9ID	13	2	4.7	4.7	86.0
7/17 CAV	15	1	2.3	2.3	88.4
23ID	16	1	2.3	2.3	90.7
169 EN BN	17	1	2.3	2.3	93.0
46 EN BN	18	1	2.3	2.3	95.3
1/502 INF	19	1	2.3	2.3	97.7
2/39 INF	20	1	2.3	2.3	100.0
		-----	-----	-----	-----
		TOTAL	43	100.0	100.0
VALID CASES	43	MISSING CASES	0		

UNIT2 SECOND UNIT

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
101 DIV	2	2	4.7	28.6	28.6
25ID	3	1	2.3	14.3	42.9
173BDE	4	2	4.7	28.6	71.4
7 CAV	7	1	2.3	14.3	85.7
5 SP GRP	14	1	2.3	14.3	100.0
	0	36	83.7	MISSING	-----
		-----	-----	-----	-----
		TOTAL	43	100.0	100.0
VALID CASES	7	MISSING CASES	36		

UNIT3 THIRD UNIT

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
1 CAV DIV	6	1	2.3	100.0	100.0
	0	42	97.7	MISSING	-----
		-----	-----	-----	-----
		TOTAL	43	100.0	100.0
VALID CASES	1	MISSING CASES	42		

BRANCH

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
INFANTRY	1	30	69.8	69.8	69.8
ARMOR	2	5	11.6	11.6	81.4
ADA	3	2	4.7	4.7	86.0
ENGINEERS	4	5	11.6	11.6	97.7
FIELD ARTILLERY	5	1	2.3	2.3	100.0
		-----		-----	
	TOTAL	43	100.0	100.0	
VALID CASES	43	MISSING CASES	0		

PLTLDR

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
HELD POSITION	1	25	58.1	58.1	58.1
NOT IN POSITION	2	18	41.9	41.9	100.0
	-----			-----	
	TOTAL	43	100.0	100.0	
VALID CASES	43	MISSING CASES	0		

COCDR

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
HELD POSITION	1	30	69.8	69.8	69.8
NOT IN POSITION	2	13	30.2	30.2	100.0
	-----			-----	
	TOTAL	43	100.0	100.0	
VALID CASES	43	MISSING CASES	0		

TOUR1 PERIOD OF FIRST OR ONLY TOUR

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
1965 OR 1965-6	1	3	7.0	7.0	7.0
1966 OR 1966-7	2	5	11.6	11.6	18.6
1967 OR 1967-8	3	8	18.6	18.6	37.2
1968 OR 1968-9	4	6	14.0	14.0	51.2
1969 OR 1969-70	5	7	16.3	16.3	67.4
1970 OR 1970-1	6	8	18.6	18.6	86.0
1971 OR 1971-2	7	6	14.0	14.0	100.0
		-----		-----	
	TOTAL	43	100.0	100.0	
VALID CASES	43	MISSING CASES	0		
TOUR2 SECOND TOUR					
VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
1968 OR 1968-9	4	3	7.0	7.0	7.0
1969 OR 1969-70	5	6	14.0	14.0	20.9
1970 OR 1970-1	6	3	7.0	7.0	27.9
1971 OR 1971-2	7	4	9.3	9.3	37.2
NO SECOND TOUR	9	27	62.8	62.8	100.0
	-----	-----	-----	-----	
	TOTAL	43	100.0	100.0	
VALID CASES	43	MISSING CASES	0		

TERJUNGL TERRAIN-JUNGLE

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
FOUGHT IN	1	34	79.1	87.2	87.2
DID NOT FIGHT IN	2	5	11.6	12.8	100.0
	0	4	9.3	MISSING	
		-----	-----	-----	
		TOTAL	43	100.0	100.0
VALID CASES	39	MISSING CASES	4		

TEROPN TERRAIN-PADDY OR OPEN

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
FOUGHT IN	1	28	65.1	71.8	71.8
DID NOT FIGHT IN	2	11	25.6	28.2	100.0
	0	4	9.3	MISSING	
		-----	-----	-----	
		TOTAL	43	100.0	100.0
VALID CASES	39	MISSING CASES	4		

TERBUILT TERRAIN-CIV BUILTUP

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
FOUGHT IN	1	11	25.6	28.2	28.2
DID NOT FIGHT IN	2	28	65.1	71.8	100.0
	0	4	9.3	MISSING	
		-----	-----	-----	
		TOTAL	43	100.0	100.0
VALID CASES	39	MISSING CASES	4		

TERINSTL TERRAIN-MILINSL/FIREBASE

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
FOUGHT IN	1	26	60.5	66.7	66.7
DID NOT FIGHT IN	2	13	30.2	33.3	100.0
	0	4	9.3	MISSING	
		-----	-----	-----	
		TOTAL	43	100.0	100.0
VALID CASES	39	MISSING CASES	4		

TERROTHR TERRAIN-OTHER

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
FOUGHT IN	1	8	18.6	20.5	20.5
DID NOT FIGHT IN	2	31	72.1	79.5	100.0
	0	4	9.3	MISSING	
		-----	-----	-----	
		TOTAL	43	100.0	100.0
VALID CASES	39	MISSING CASES	4		

IV. Personal Actions - Veteran Survey

ENGAGENO NO. TIMES ENGAGED ENEMY WITH DIRECT FIRE

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
NEVER	0	9	3.7	3.7	3.7
1 TO 5 TIMES	3.00	30	12.5	12.5	16.3
6 TO 10 TIMES	8.00	27	11.3	11.3	27.5
11 TO 15 TIMES	13.00	27	11.3	11.3	38.7
16 TO 20 TIMES	18.00	54	22.5	22.5	61.2
21 TO 100 TIMES	21.00	79	32.9	32.9	94.2
MORE THAN 100 TIMES	101.00	14	5.8	5.8	100.0
		-----		-----	
	TOTAL	240	100.0	100.0	
VALID CASES	240	MISSING CASES	0		

LFTHRNO NO. TIMES IN LIFE-THREATENING SIT

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
NEVER	0	2	.8	.8	.8
1 TO 5 TIMES	3.00	29	12.1	12.1	13.0
6 TO 10 TIMES	8.00	38	15.8	15.9	28.9
11 TO 15 TIMES	13.00	28	11.7	11.7	40.6
16 TO 20 TIMES	18.00	73	30.4	30.5	71.1
21 TO 100 TIMES	21.00	65	27.1	27.2	98.3
MORE THAN 100 TIMES	101.00	4	1.7	1.7	100.0
	1		.4	MISSING	
		-----		-----	
		TOTAL	240	100.0	100.0
VALID CASES	239	MISSING CASES	1		

PCLFTHR % TIME ENGAGED IN LF THREAT SIT

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
	0	3	1.3	1.3	1.3
	5	11	4.6	4.7	6.0
	10	9	3.7	3.9	9.9
	15	7	2.9	3.0	12.9
	20	6	2.5	2.6	15.5
	25	4	1.7	1.7	17.2
	30	2	.8	.9	18.1
	35	4	1.7	1.7	19.8
	40	5	2.1	2.2	22.0
	45	2	.8	.9	22.8
	50	14	5.8	6.0	28.9
	55	10	4.2	4.3	33.2
	60	5	2.1	2.2	35.3
	65	8	3.3	3.4	38.8
	70	9	3.7	3.9	42.7
	75	16	6.7	6.9	49.6
	80	17	7.1	7.3	56.9
	85	13	5.4	5.6	62.5
	90	16	6.7	6.9	69.4
	95	30	12.5	12.9	82.3
	99	1	.4	.4	82.8
OUT OF RANGE	100	40	16.7	17.2	100.0
		8	3.3	MISSING	
		-----		-----	
		TOTAL	240	100.0	100.0

MEAN	67.733	STD ERR	2.054	MEDIAN	80.000
MODE	100.000	STD DEV	31.284	VARIANCE	978.673
KURTOSIS	-.663	S E KURT	1.992	SKEWNESS	-.797
S E SKEW	.160	RANGE	100.000	MINIMUM	0
MAXIMUM	100.000	SUM	15714.000		

VALID CASES 232 MISSING CASES 8

V. Engagement Observations - Leader Survey

LFTHRNO NO. TIMES MEN IN LIFE-THREATENING SIT

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
1 TO 5 TIMES	3.00	6	14.0	14.0	14.0
6 TO 10 TIMES	8.00	12	27.9	27.9	41.9
11 TO 15 TIMES	13.00	3	7.0	7.0	48.8
16 TO 20 TIMES	18.00	5	11.6	11.6	60.5
21 TO 100 TIMES	21.00	12	27.9	27.9	88.4
MORE THAN 100 TIMES	101.00	5	11.6	11.6	100.0
		-----	-----	-----	-----
	TOTAL	43	100.0	100.0	
VALID CASES	43	MISSING CASES	0		

PCFRTH % MEN WHO FIRED IN LIFE-THREAT SIT

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
	40	2	4.7	5.4	5.4
	45	4	9.3	10.8	16.2
	50	1	2.3	2.7	18.9
	60	2	4.7	5.4	24.3
	65	2	4.7	5.4	29.7
	70	4	9.3	10.8	40.5
	75	1	2.3	2.7	43.2
	80	2	4.7	5.4	48.6
	85	2	4.7	5.4	54.1
	90	6	14.0	16.2	70.3
	95	7	16.3	18.9	89.2
	98	1	2.3	2.7	91.9
	100	3	7.0	8.1	100.0
OUT OF RANGE		6	14.0	MISSING	-----
		-----	-----	-----	-----
	TOTAL	43	100.0	100.0	
MEAN	76.973	STD ERR	3.252	MEDIAN	85.000
MODE	95.000	STD DEV	19.780	VARIANCE	391.249
KURTOSIS	-.990	S E KURT	1.958	SKEWNESS	-.625
S E SKEW	.388	RANGE	60.000	MINIMUM	40.000
MAXIMUM	100.000	SUM	2848.000		
VALID CASES	37	MISSING CASES	6		

NORMPC NORMAL % FIRED

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
	30	1	2.3	3.2	3.2
	50	4	9.3	12.9	16.1
	60	1	2.3	3.2	19.4
	65	4	9.3	12.9	32.3
	70	3	7.0	9.7	41.9
	75	1	2.3	3.2	45.2
	78	1	2.3	3.2	48.4
	80	2	4.7	6.5	54.9
	85	3	7.0	9.7	64.5
	90	3	7.0	9.7	74.2
	93	1	2.3	3.2	77.4
	95	4	9.3	12.9	90.3
	98	1	2.3	3.2	93.5
	100	2	4.7	6.5	100.0
OUT OF RANGE		12	27.9	MISSING	
		-----	-----	-----	-----
	TOTAL	43	100.0	100.0	
MEAN	76.419	STD ERR	3.263	MEDIAN	80.000
MODE	50.000	STD DEV	18.165	VARIANCE	329.985
KURTOSIS	-.242	S E KURT	1.952	SKEWNESS	-.648
S E SKEW	.421	RANGE	70.000	MINIMUM	30.000
MAXIMUM	100.000	SUM	2369.000		
VALID CASES	31	MISSING CASES	12		

VI. Engagement Percentage - Individual versus Crew-served Weapons Use by Fellow Unit Members

PCINDFR % WITH IND DF WPNS WHO FIRED

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
	0	3	1.3	1.4	1.4
	1	1	.4	.5	1.9
	5	4	1.7	1.9	3.7
	10	3	1.3	1.4	5.1
	15	2	.8	.9	6.0
	20	4	1.7	1.9	7.9
	30	1	.4	.5	8.4
	40	5	2.1	2.3	10.7
	50	2	.8	.9	11.6
	60	2	.8	.9	12.6
	65	2	.8	.9	13.5
	70	5	2.1	2.3	15.8
	75	5	2.1	2.3	18.1
	80	25	10.4	11.6	29.8
	85	19	7.9	8.8	38.6
	90	30	12.5	14.0	52.6
	95	56	23.3	26.0	78.6
	98	1	.4	.5	79.1
	99	1	.4	.5	79.5
OUT OF RANGE	100	44	18.3	20.5	100.0
		25	10.4	MISSING	
	TOTAL	240	100.0	100.0	
MEAN	82.316	STD ERR	1.699	MEDIAN	90.000
MODE	95.000	STD DEV	24.918	VARIANCE	620.900
KURTOSIS	3.693	S E KURT	1.991	SKEWNESS	-2.142
S E SKEW	.166	RANGE	100.000	MINIMUM	0
MAXIMUM	100.000	SUM	17698.000		
VALID CASES	215	MISSING CASES	25		

PCCREW % WITH CREW-SRVD WPNS WHO FIRED

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
	0	2	.8	1.0	1.0
	5	2	.8	1.0	2.1
	10	2	.8	1.0	3.1
	20	2	.8	1.0	4.1
	35	1	.4	.5	4.7
	45	1	.4	.5	5.2
	50	7	2.9	3.6	8.8
	55	1	.4	.5	9.3
	57	1	.4	.5	9.8
	70	8	3.3	4.1	14.0
	75	7	2.9	3.6	17.6
	80	9	3.7	4.7	22.3
	85	12	5.0	6.2	28.5
	88	1	.4	.5	29.0
	90	21	8.8	10.9	39.9
	95	51	21.3	26.4	66.3
	98	3	1.3	1.6	67.9
	99	2	.8	1.0	68.9
	100	60	25.0	31.1	100.0
OUT OF RANGE		47	19.6	MISSING	
	TOTAL	240	100.0	100.0	
MEAN	86.798	STD ERR	1.501	MEDIAN	95.000
MODE	100.000	STD DEV	20.847	VARIANCE	434.600
KURTOSIS	6.634	S E KURT	1.990	SKEWNESS	-2.557
S E SKEW	.175	RANGE	100.000	MINIMUM	0
MAXIMUM	100.000	SUM	16752.000		
VALID CASES	193	MISSING CASES	47		

INDPC % IND WPNS WHICH FIRED

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
	35	1	2.3	2.8	2.8
	45	1	2.3	2.8	5.6
	50	1	2.3	2.8	8.3
	55	1	2.3	2.8	11.1
	60	2	4.7	5.6	16.7
	70	2	4.7	5.6	22.2
	75	3	7.0	8.3	30.6
	80	2	4.7	5.6	36.1
	85	2	4.7	5.6	41.7
	90	5	11.6	13.9	55.6
	93	1	2.3	2.8	58.3
	95	6	14.0	16.7	75.0
	98	1	2.3	2.8	77.8
	99	1	2.3	2.8	80.6
	100	7	16.3	19.4	100.0
OUT OF RANGE		7	16.3	MISSING	
	TOTAL	43	100.0	100.0	
MEAN	83.611	STD ERR	2.946	MEDIAN	90.000
MODE	100.000	STD DEV	17.675	VARIANCE	312.416
KURTOSIS	.610	S E KURT	1.957	SKEWNESS	-1.198
S E SKEW	.393	RANGE	65.000	MINIMUM	35.000
MAXIMUM	100.000	SUM	3010.000		
VALID CASES	36	MISSING CASES	7		

CREWPC % CREW-SERVED WHICH FIRED

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
	50	1	2.3	2.7	2.7
	65	1	2.3	2.7	5.4
	80	5	11.6	13.5	18.9
	85	3	7.0	8.1	27.0
	90	7	16.3	18.9	45.9
	95	7	16.3	18.9	64.9
	98	1	2.3	2.7	67.6
	100	12	27.9	32.4	100.0
OUT OF RANGE		6	14.0	MISSING	
	TOTAL	43	100.0	100.0	
MEAN	90.892	STD ERR	1.778	MEDIAN	95.000
MODE	100.000	STD DEV	10.814	VARIANCE	116.932
KURTOSIS	4.910	S E KURT	1.958	SKEWNESS	-1.925
S E SKEW	.388	RANGE	50.000	MINIMUM	50.000
MAXIMUM	100.000	SUM	3363.000		
VALID CASES	37	MISSING CASES	6		

VII. Observations and Explanations - Fellow Unit Members not
Engaging Enemy

BUDNOFR ANOTHER EVER NOT FIRE WHEN SHOULD?

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
YES	0	120	50.0	50.4	50.4
NO	1	118	49.2	49.6	100.0
	9	2	.8	MISSING	
		TOTAL	240	100.0	100.0
VALID CASES	238	MISSING CASES	2		

WHYDNK WHY OTHER DID NOT FIRE - DO NOT KNOW

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
NOT REASON/NEVER SAW	0	215	89.6	94.3	94.3
YES, A REASON	1	13	5.4	5.7	100.0
	9	12	5.0	MISSING	
		TOTAL	240	100.0	100.0
VALID CASES	228	MISSING CASES	12		

WHYFEAR WHY OTHER DID NOT FIRE - FEAR

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
NOT REASON/NEVER SAW	0	130	54.2	57.0	57.0
YES, A REASON	1	98	40.8	43.0	100.0
	9	12	5.0	MISSING	
		TOTAL	240	100.0	100.0
VALID CASES	228	MISSING CASES	12		

WHYMORL WHY OTHER DID NOT FIRE - MORAL REASONS

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
NOT REASON/NEVER SAW	0	211	87.9	92.5	92.5
YES, A REASON	1	17	7.1	7.5	100.0
	9	12	5.0	MISSING	
		TOTAL	240	100.0	100.0
VALID CASES	228	MISSING CASES	12		

WHYOTHR WHY OTHER DID NOT FIRE - OTHER REASONS

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
NOT REASON/NEVER SAW	0	174	72.5	76.3	76.3
YES, A REASON	1	54	22.5	23.7	100.0
	9	12	5.0	MISSING	
		TOTAL	240	100.0	100.0
VALID CASES	228	MISSING CASES	12		

SEENOFR SOLDIER NOT FIRE WHEN SHOULD?

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
YES	1	22	51.2	51.2	51.2
NO	2	18	41.9	41.9	93.0
NA	3	3	7.0	7.0	100.0
		-----	-----	-----	-----
		TOTAL	43	100.0	100.0
VALID CASES	43	MISSING CASES	0		

WHYDNK WHYNOTFIRE-DNK

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
NOT A REASON	0	23	53.5	95.8	95.8
YES, A REASON	1	1	2.3	4.2	100.0
	3	19	44.2	MISSING	-----
		-----	-----	-----	-----
		TOTAL	43	100.0	100.0
VALID CASES	24	MISSING CASES	19		

WHYFEAR WHYNOTFIRE-FEAR

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
NOT A REASON	0	13	30.2	54.2	54.2
YES, A REASON	1	11	25.6	45.8	100.0
	3	19	44.2	MISSING	-----
		-----	-----	-----	-----
		TOTAL	43	100.0	100.0
VALID CASES	24	MISSING CASES	19		

WHYMORL WHYNOTFIRE-MORAL

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
NOT A REASON	0	23	53.5	95.8	95.8
YES, A REASON	1	1	2.3	4.2	100.0
	3	19	44.2	MISSING	-----
		-----	-----	-----	-----
		TOTAL	43	100.0	100.0
VALID CASES	24	MISSING CASES	19		

WHYOTHR WHYNOTFIRE-OTHER

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
NOT A REASON	0	8	18.6	33.3	33.3
YES, A REASON	1	16	37.2	66.7	100.0
	3	19	44.2	MISSING	-----
		-----	-----	-----	-----
		TOTAL	43	100.0	100.0
VALID CASES	24	MISSING CASES	19		

Annex D: Reasons for not firing weapon during engagement

Statements are syntheses of reasons cited by respondents for why they themselves did not fire, other soldiers did not fire, or both. Values following statements are the total number of times such a statement appeared. The table includes all reasons cited 3 or more times and selected reasons cited once or twice.

<u>Reason</u>	<u>Veteran</u>	<u>Survey</u>	<u>Leader</u>
Incoming small arms, indirect weapons, or other fire suppressed ability to return fire or was fired by enemy who could not be engaged by return direct fire.....	36		
Weapon malfunction.....	30		
Did not want to expose position (includes duty on long range reconnaissance patrol, listening post, observation post, and ambush) Also includes duty in night position with orders not to fire direct fire weapon as engagement would reveal location.....	27		
Did not know where enemy was/no visible target.....	27	11	
Friendly forces or civilians in line of fire.....	26		
Leader of unit performing other duties....	19		
Medic performing duties.....	10		
RTO performing duties.....	9		
Soldier confused or did not recognize danger.....	8		
FO performing duty.....	7		
Soldiers performing other mission related tasks (e.g. passing ammunition, resupplying machine gun, advisor, photographer).....	5		
Ran out of ammunition.....	5		

<u>Reason</u>	<u>Survey</u>	
	<u>Veteran</u>	<u>Leader</u>

Conserving ammunition.....	5
Conscientious objector.....	5
Used other means to engage enemy (e.g. artillery, helicopter fire, tactical air, bayonet, claymore mines, grenades).....	4
"Short-timer" would not expose himself.....	3
Changing position/running for cover.....	3
Under influence of drugs.....	2
Improper training.....	2
Wounded, could not return fire.....	2
In a no fire zone.....	2
In helicopter as crew or with doors closed.....	2
Did not want to attract enemy fire.....	2
Did not fire at woman in spite of her being armed.....	1
Saw enemy for first time, asked if he should fire. Subsequently was too late respond.....	1
Doing maintenance work while protected by infantry soldiers.....	1
Attempted to get enemy to surrender..... and was killed in attempt	1

Annex E: Training recommendations and comments from veteran and leader surveys

The following are syntheses of training suggestions and comments from veteran and leader survey respondents. Values following statements are the total number of times such a statement appeared. The table includes all suggestions cited 2 or more times and selected suggestions cited once.

<u>Suggestion</u>	<u>Survey</u>	
	<u>Veteran</u>	<u>Leader</u>
Stress basic marksmanship training and/or fire discipline.....	26	5
Train with U.S. weapons other than personal weapon (include training with enemy weapons).....	19 (7)	
Train in more than weapons use (e.g. map reading, call for artillery fire, tactics, patrolling, target location).....	13	
Train in similar terrain/environment.....	11	3
Train leaders.....	11	3
Train in "quick kill" techniques (e.g. hip shooting), use pop-up targets/reaction drills/live fire courses.....	11	5
Stress weapons and ammunition maintenance....	10	
Train as a unit; use squad drills.....	9	9
Training as given was good.....	9	
Use combat veterans as trainers.....	8	
Simulate or actually fire at personnel during training.....	7	3
Train with proper weapon in basic and AIT (this comment primarily from soldiers trained with M14 in BCT or AIT and issued M16 upon arrival in Vietnam).....	5	
Include mental preparation for combat in weapons and other training.....	5	
Stress importance of keeping fire low when putting out high volume of fire (properly train to use grazing fire).....	4	

<u>Suggestion</u>	<u>Veteran</u>	<u>Survey</u>	<u>Leader</u>
Restrict or do not use full automatic fire.....	4		2
Train more in methods to clear a weapons jam/train to clear weapons jam in low visibility or when blindfolded.....	4		
Better train rear area soldiers in weapons use/how to put out suppressive fire.....	4		
Use more refresher training for units or newly arrived soldiers.....	4		
Replace units, not individuals/use COHORT.....	3	1	
Train more/properly for night combat.....	3		
Use known distance ranges.....	3	1	
Use MILES.....	3	1	
Train in enemy soldier identification.....	3		
Use more rounds in qualifying/weapons training.....	2		
Teach soldiers to beat enemy, not fear him....	1		
Persons changing assignments (coming from rear area jobs) should receive refresher training.....	1		
Train in proper actions when front of column receives fire (do not fire to front and hit friendlies).....	1		
Train to engage targets at greater ranges....	1	1	
Train to engage immediately so as to gain initiative, then go to ground and seek cover		1	

ENDNOTES

* JFC Fuller. The Generalship of Ulysses S. Grant. Bloomington, Indiana: Indiana University Press, 1958, p. 199.

* Paddy Griffith. Forward into Battle: Fighting Tactics from Waterloo to Vietnam. Stretton, Great Britain: Antony Bird, 1981, p. 10.

* Soviet Military Power. US Government Printing Office: Washington, D.C., 1987, p. 9.

* Avraham Adan. On the Banks of the Suez. Presidio Press: Novato, California, 1980, p. 468.

* S.L.A. Marshall. Men Against Fire: The Problem of Battle Command in Future War. Gloucester, Massachusetts: Peter Smith, 1978, p. 54. Hereafter cited as Men Against Fire.

* S.L.A. Marshall. Commentary On Infantry Operations and Weapons Usage in Korea, Winter of 1950-51. Report completed under Department of the Army contract by the Operations Research Office, The Johns Hopkins University, October 27, 1951, p. 59. Hereafter cited as Korea.

* CANE: Combined Arms in a Nuclear/Chemical Environment, Force Development Testing and Experimentation, Summary Evaluation Report, Phase 1. Unpublished report from the U.S. Army Chemical School, Fort McClellan, Alabama, March, 1986, p. 1-3. The above study was conducted by CDEC. CDEC computer tapes for this and other studies may provide data on the percentage of fire put out by soldiers in control groups. Such data could provide a theoretical "ceiling" value for the maximum percentage of soldiers who fire at the enemy with their weapons during an engagement. CDEC uses the Real Time Casualty Assessment System (RTCA) to obtain data. RTCA involves a MILES-like weapons system and ground-based sensors/transmitters which allow analysts to determine who fired a weapon and who (if anyone) was struck by the "shot". (The previous information regarding CDEC was obtained in a telephonic interview with LTC Macchiaroli, Chief, Plans Division, Directorate of Test and Experimentation, CDEC, Fort Ord, California on 25 September 1987.) The National Training Center (NTC) currently has a very limited capability to determine such fire data for some crew-served weapons systems. No capability to obtain similar data on the individual rifleman exists at NTC.

* Men Against Fire, p. 54.

► This quotation is taken from 1st Cavalry Division Association survey response number 95. Original survey responses are in possession of the author. Extracts from 1st Cavalry Division Association survey responses are hereafter cited as Survey.

¹⁰ Men Against Fire, p. 54.

¹¹ Men Against Fire, p. 57. Marshall discriminated between heavy weapons (for example the BAR and flamethrower) and the standard infantry rifle. He noted that operators of heavy weapons were more likely to engage the enemy than were riflemen because of the increased responsibility inherent in being assigned those weapons (Men Against Fire, p.76). Squads in Vietnam normally had no heavy individual weapons. The M60 machinegun, a crew-served weapon, was organic to infantry platoons and many other units. The M60 was the Vietnam equivalent to Marshall's heavy weapon due to its sustained volume of fire and the key role it played in small unit actions. David Rowland (see footnote 19) also uses the machinegun to compare the output of fire from soldiers equipped with rifles and heavier weapons. His findings support Marshall's assertion that heavy weapons operators fire more than riflemen in engagements (Rowland, p.36).

¹² Men Against Fire, p. 71.

¹³ Men Against Fire, p. 78.

¹⁴ Men Against Fire, p. 79 and Korea, p. 59.

¹⁵ Korea, p. 5.

¹⁶ Lieutenant Colonel Roy E. Moore. "Shoot, Soldier!" Infantry Journal. Volume LVI, No. 4 (December, 1945): 21.

¹⁷ Lieutenant Colonel John E. Kelly. "Shoot, Soldier, Shoot." Infantry Journal. Volume LVIII, No. 1 (January, 1946): 47.

¹⁸ Robert L. Weislogel and John C. Flanagan. The Job of the Combat Infantryman. Revised and rewritten by Suzanne G. Billingsley. Report completed under Department of the Army contract by the Operations Research Office, The Johns Hopkins University, September 18, 1953, p. 43.

¹⁹ David Rowland. "Assessments of Combat Degradation". Journal of the Royal United Services Institute for Defense Studies. Volume 131, No. 2 (June, 1986): 43. Cited as Rowland.

²⁰ Lieutenant Colonel Romie L. Brownlee and Lieutenant Colonel William J. Mullen. Changing An Army: An Oral History of General William E. DeFuy. Carlisle Barracks, Pennsylvania: U.S. Military History Institute, p. 160.

²¹ Roger J. Spiller. "S.L.A. Marshall and the Ratio of Fire". Unpublished article dated September 5, 1987, p. 7. Dr. Spiller has done considerable research on S.L.A. Marshall and his ratio of fire. He has found no evidence that Marshall ever specifically asked soldiers whether they engaged the enemy with a weapon. While Marshall could base his ratio of fire estimate on his personal experiences, the value apparently is not the result of a formal research effort.

²² Ardant Du Picq. Battle Studies: Ancient and Modern Battle. Trans. Colonel John N. Greely and Major Robert C. Cotton. Harrisburg, Pennsylvania: The Military Service Publishing Company, 1946, p. 8. Hereafter cited as Battle Studies.

²³ Men Against Fire, p. 53.

²⁴ Major General H.T. Siborne. Waterloo Letters. London: Cassell and Co., Limited, 1891, p. ix-xi.

²⁵ Battle Studies, p. 5-8.

²⁶ S.L.A. Marshall. Island Victory. Washington, D.C.: Infantry Journal-Penguin Books, 1944, p. 104.

²⁷ S.L.A. Marshall. The Fields of Bamboo. The Dial Press: New York, p. 2.

²⁸ Samuel A. Stouffer et al. The American Soldier: Adjustment During Army Life. Princeton, New Jersey: Princeton University Press, 1949, p. 21.

²⁹ Sources of bias in any survey are unavoidable. Several potential sources of bias exist in the veteran survey. For example, the sample consists of veterans who are members of a volunteer organization; it is arguable that only those with a certain predisposition toward their military service would join a service-related organization. Secondly, it is likely that those responding to the survey have different attitudes on the issue than those who receive questionnaires and do not respond. Bias does not negate survey findings, but those applying survey findings must be conscious of bias effects.

³⁰ Men Against Fire, p. 50.

³¹ Survey #27.

³² The median, like the mean or average, measures the center of data. The median is the middle value in a set of values when that set has an odd number of values. If the set has an even number of values, the median is the sum of the two middle values divided by 2. The median is frequently a better measure of the center than is the mean because it compensates for outliers which can shift the mean and give a misleading value. For example, if a set of values contains (1, 88, 95, 97, 99), the mean (average) is 76; the median is 95. The mean may not reflect the true character of the sample because of the outlier "1". The median reflects the data's high value character. In this study, several respondents replied to the veteran survey questions regarding the percentage of soldiers with a given type of weapon who returned fire (#18 and #19) with a 0 or very small value. While they may have done so intentionally, it may be that they misread the question and answered at the wrong end of the scale. In any case, the few very low values result in a lower value for the mean than would be the case were they missing; most respondents replied with a high value.

Marshall's ratio of fire, as he describes it, is a mean. Thus the author uses means to give a legitimate comparison. Where applicable he also states the median. It is the latter which the author finds to be the more accurate measure of the percentage of men who fired their weapons under the conditions specified in each question.

³³ The results of question #12 from the leader survey may be low. The scale upon which respondents marked their answers was shifted to the left. For consistency, the author tabulated all values as though the scale were in its proper location, e.g. the third vertical mark on the scale was recorded as 20%, as it would have been had the scale been in proper alignment. The only exceptions were when the respondent specified a value in which case the written value was used. The shifted scale is shown below. The survey in Annex B is a corrected version.

-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	
0%	10	20	30	40	50%	60	70	80	90	100%

³⁴ Men Against Fire, p. 55.

³⁵ A single value for the percentage of men who fired in the given situation, regardless of weapon, could theoretically be determined by taking the number of individual and crew-served weapons per squad or platoon and finding a weighted average based on Tables of Organization and Equipment (TO&E) quantities. However, many units in

Vietnam did not arm themselves per TO&E. They had extra crew-served weapons, weapons not authorized under TO&E, or other modifications which unit members determined would give them firepower better suited to their missions. Additionally, all units do not have identical TO&Es. Such a calculation would therefore be misleading.

³⁶ Additionally, American ground forces often did not have the initiative at the start of enemy contacts. Lewy cites a 1967 DOD Systems Analysis Office study which states "The VC/NVA started the shooting in over 90% of the company-sized fire fights." He further states "The great majority of all ground battles were at the enemy's choice of time, place, type and duration." Guenter Lewy. America in Vietnam. Oxford University Press: New York, 1978, p. 82.

³⁷ Men Against Fire, p. 57.

³⁸ Men Against Fire, p. 76.

³⁹ See Annex C for hypothesis tests on the equality of the means for individual and crew-served weapons engagement.

⁴⁰ The leader survey value for this measure is 45.8%.

⁴¹ The leader survey value for this measure is 4.2%.

⁴² Men Against Fire, p. 71.

⁴³ Men Against Fire, p. 78.

⁴⁴ Men Against Fire, p. 48.

⁴⁵ Korea, p. 61.

⁴⁶ Survey #245. Only 240 survey responses were analyzed using the SPSS software although several more were received. Several surveys were not included in the analysis due to their not being applicable (e.g. respondent had not served in Vietnam) or because the responses within a single survey were highly contradictory.

⁴⁷ Coverage of this issue comes later in the paper. The primary shortcoming which should have been avoidable was the training of soldiers in the United States with M14s only to have them arrive in Vietnam and immediately be issued M16s, a weapon some had never used.

⁴⁸ Carl von Clausewitz. On War. Ed. and Trans. by Michael Howard and Peter Paret. Princeton, New Jersey: Princeton University Press, 1976, p. 122.

⁴⁷ Survey #81.

⁴⁸ G.N. Donovan. Use of Infantry Weapons and Equipment in Korea. Report completed under Department of the Army contract by the Operations Research Office, The Johns Hopkins University, August, 1952, p. 31. Hereafter cited as Donovan.

⁴⁹ Donovan, p. 28.

⁵⁰ Donovan found that Korean War American officer veterans also believed that the American soldier should have training in more than his basic weapon. Of 16 officers queried, "12 thought that all infantry troops should have some training on all infantry company weapons." Three of the four remaining officers felt the men should receive training in two or three weapons. The remaining officer thought that all but rifle training should be done after a soldier arrived in his unit. Donovan, p. 83-4.

⁵¹ Survey #5.

⁵² Survey #116

⁵³ Survey #88

⁵⁴ Survey #226

⁵⁵ Colonel T.N. Depuy. Numbers, Predictions and War: Using History to Evaluate Combat Factors and Predict the Outcome of Battles. New York: The Bobbs-Merrill Company, Inc., 1979, p. 6.

⁵⁶ General Carl E. Vuono. "The Dynamics of Combat Readiness." Army. Volume 37, No. 10 (October, 1987): 22.

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